FOREST DEPARTMENT

OFFICE OF THE CHIEF CONSERVATOR OF FORESTS IN MYSORE, BANGALORE.

Notification No. S2. 127-1513— 33-34, *dated 25th June* 1934.

It is hereby notified that the Mysore Forest Departmental Examinations in Forest Code and Accounts and Rules will be held on Monday, the 30th July 1934, in all the District Forest Offices in the State.

Forest Officers and other subordinates of the Department who wish to sit for the Examinations should intimate their intention to do so to the Chief Conservator of Forests through their official superiors not later than the 23rd July 1934.

M. MACHAYA,
Offg. *Chief Conservator of Forests.*

OFFICE OF THE CONSERVATOR OF FORESTS, SHIMOGA.

Notification No. S. 17-1632—33-34, *dated 25th June* 1934.

The public are hereby informed that the Office of the Conservator of Forests, Shimoga Circle, which was located in Mr. A. Sreenivasa Iyengar's building near the Mysore Bank (Branch), will be shifted to the Sandal Koti building, Shimoga, with effect from 1st July 1934.

H. S. NARAYANA RAO,
Offg. *Conservator of Forests.*

UNIVERSITY OF MYSORE

Notification No. 25618, *dated* 21*st June* 1934.

The following is the scale of fees prescribed for the Pre-Medical Course and the Pre-Medical Examination with effect from the Session of 1934-35 :—

		Rs.
(1)	Admission fee	10
(2)	(*a*) Tuition fee-whole course (payable in two equal instalments) ...	72
	(*b*) Tuition fee—compartmental for graduates exempted from part of the course—	
	(i) For those who have only one subject to do ...	25
	(ii) For those who have only two subjects to do ...	45
	(iii) For those who have only three subjects to do ... (Payable in two instalments in each case.)	60
(3)	Examination fee—	
	Whole Examination	30
	For one subject	10
	For two subjects	18
	For three subjects	25

Notification No. 25620, *dated the* 21*st June* 1934.

The following are the detailed course of studies and scheme of Examination for the Pre-Medical Course :—

(a) The course shall comprise study and examination in the subjects of Physics, Inorganic Chemistry, Zoology and Botany according to the syllabus appended.

I. PHYSICS.

The course in Physics shall include a more extended study of the subject matter included in the Intermediate Syllabus and in addition, the following :—

Measurement of small intervals of length and of time; the electrically driven tuning fork and the electrical Chronograph; graphic method of registering movement.

Periodic motion; uniform circular motion; centrifugal and centripetal forces; Pumps; Simple pendulum;

Properties of matter; Elasticity; Hook's Law; effect of loading and unloading a wire. Young's modulus and coefficient of rigidity. Molecular phenomena in liquids; osmosis and diffusion; surface tension and capillary Phenomena.

Principle of Continuity; Torricelli's principle.

Gas laws and their explanation on the basis of the Kinetic Theory of Matter. The critical constants of a gas.

The meteorological elements; temperature in shade, in the open and in vacuo; aqueous vapour pressure; clouds and rainfall; pressure direction and velocity of wind; periodic winds; land and sea breezes and monsoons; instruments for measuring the meteorological elements. Weather and climate.

Heat: Thermometry; dilatation; change of state; calorimetry; water and air calorimeter;

Radiation and absorption; Newton's Law of cooling. Theory of exchange; methods of detecting and measuring thermal radiation.

The mechanical theory of heat. First and Second Laws of Thermo-dynamics. The ideal heat engine. Efficiency.

Sound: Velocity of propagation of sound: Newton's formula and Laplace's correction. Resonance. Sound producers including the vocal chords. Sound receivers including the human ear.

Light: Transverse waves and their production and propagation; Velocity of propagation.

The Wave Theory of light: Elements of wave theory of light and the general theory of the Diffraction Grating.

Double defraction, Polarisation, Saccharimetry.

The eye as an optical instrument. Defects of the eye, myopia, hyper-metropia and astigmatism. Spherical and cylindrical spectacle lenses; power and numbering of lenses and relevent geometrical optics.

The compound microscope; spherical and chromatic aberrations and how they are eliminated; magnification; oil immersion objective.

The spectroscope; emission and absorption spectra; direct vision spectroscope.

The Photographic Camera.

Electricity.—

Elecric capacity and condensers.
Non-polarisable electrodes
General study of Conductivity of electrolytes; Ionisation and migration phenomena.
The capillary electrometer
Thermo-couple and thermo-pile
Electro-magnetic induction; mutual and self induction; the induction coil.
Elements-Phenomena accompanying the passage of high tension currents through rarefied gases; cathode rays and X-rays. X-ray photography. Radio activity.

Practical Physics.—

General:—
The screw-guage; the spherometer and the vernier microscope
Simple pendulum
Young's modulus by stretching; tenacity
Surface tension (*a*) rise in a capillary tube, (*b*) surface tension balance
Determination and comparison of the viscosities of liquids.

Heat: Coefficients of expansion
Determination of specific and latent heats by the method of mixtures
Specific heat by the method of cooling
Mechanical equivalent of heat
Thermal conductivity

Sound: Sonometer; resonating columns of gas

Light: Focal lengths of thin lenses and combinations of lenses
Determination of wave length by (*a*) Diffraction, (*b*) Diffraction Grating
Saccharimeter.
Spectrometer and Spectroscope

Electricity: Laws of Electrolysis, Resistance with P. O. Box, Comparison of E. M. F.'s by the potentiometer. The electrical calorimeter
Conductivity of an electrolyte. Thermo E. M. F.

II. CHEMISTRY.

Candidates are expected to understand the Elements of Chemistry included in the Chemistry Syllabus of the Intermediate Examination in Science and in addition to have an elementary knowledge of the following:—

General Properties of Matter.—

States of aggregation. Gas Laws. Kinetic Theory. Application in Respiratory Phenomena. Surface Tension. Viscosity. Boiling point. Melting point.

General Nature of Solutions.—

Types of solutions. Diffusion and osmotic pressure and their bearing on biological phenomena. Freezing point determination and its importance in Physiology.

Electrolytic Dissociation.—

Dissociation power of solvents. Ionisation and its physiological application. Its application to chemical analysis. Disinfection and poisonous action.

Law of Mass Action and Chemical Equilibrium. Its importance in physiological processes. Hydrogen ion concentration and its importance in biological processes. Buffers. Measurement of PH Iso-electric point. Ionisation of polybasic acids. Electromotive force. Simple reversible and non-reversible cells.

Velocity of reactions. Catalysis. Uni and bi-molecular reactions. Inversion of Sucrose. Effect of temperature. Enzymes.

The colloidal state with special reference to Emulsoids. Absorption surface and interfacial phenomena. The nature and structure of matter. Radio-activity.

Practical.—In addition to the practical work in Chemistry of the Intermediate Course, the following :—

Simple qualitative analysis—excluding phosphate, arsenate and silicate separations.

Elementary quantitative analysis involving the preparation and use of standard solutions of acids, alkalis, bichromate, permanganate, thiosulphate and silver nitrate.

Estimation of oxygen and carbon dioxide.

Gravimetric estimation of sulphate, phosphate, chlorine and ash left after ignition.

Simple chemical preparations.

BOOKS RECOMMENDED.

Principles of Physical Chemistry for Medical Students by P. M. Tookey Kerridge (Oxford University Press).

One of the following :—

Physical Chemistry for Students of Medicine by A. Findlay. (Longmans.)
Physical Chemistry and Bio-Physics by M. Steel. (Wiley.)
Physical Chemistry, its bearings on Biology and Medicine by Philip. (Arnold.)

III. ZOOLOGY.

The examination in Zoology shall comprise the subjects included in the syllabus for the Zoology part of the Intermediate Examination and in addition an elementary knowledge of the following :—

Bearing of Zoology on Medicine. Animal organisation. The organs and their functions. The tissues. The cell. Nature of protoplasm and cell multiplication. Animals without cellular tissues. The general characteristics of Protozoa. Elementary facts about the mode of life of the disease producing protozoa. Animals with two cellular layers. Study of Hydra as an introduction to the Metazoa. Structure and life history of Fasciola, Tænia and Ascaris, and other diseases producing worms. General account of Parasitism, Cœlomates. Characteristics of annelids. Type for study, Earthworm. Types for study, Earthworm and Leech. Anatomy and life history of Cockroach, Mosquito, Housefly and Scorpion. Insects and Arachnids as carriers of disease. The chordata. Amphioxus, its general structure and development. Dog-fish and the ground gland of vertebrate organisation. The Amphibia—Transition from water to air. Rana, its structure and development. Adaptation to terrestrial life. The mammals. Anatomy of the rabbit (only elementary knowledge of the muscular and nervous system). General classification of mammals. Characteristics of Primates. Development of fowl and rabbit (organogeny not required). Respiration and Respiratory contrivances. Excretion. Reproduction. The relation between parent and offspring. The doctrine of the germ plasm. Death.

A general acquaintance with the principles of evolution. A brief study of the leading characteristics and structure of the principal Indian poisonous snakes.

Practical Work.—In addition to the subjects included in the syllabus for the Intermediate Examination, Practical work shall comprise the following :—

Microscopical examination of the slides illustrating the histology of tissues of the frog. Dissections of the earthworm, housefly, frog, examination of the prepared skulls of poisonous and non-poisonous snakes—Rat snake, cobra, and viper and rabbit (detailed knowledge of the muscles and nerves not required). Examination of the slides illustrative of the segmentation and gastrulation phenomenon in amphioxus and frog. Full mounts and micro-sections of the fowl illustrating the more important developmental stages of the first three days. Structure of the fœtal membranes and placenta of the rabbit.

Viva Voce.—The candidates will be required to submit their laboratory note books at the time of practical examination.

The subject matter of the above syllabus is expected to be covered by about 40—45 lectures and about 36 practical classes of 2½ hours each.

TEXT-BOOK RECOMMENDED.

Elementary Morphology and Physiology for Medical Students by J. W. Woodger, D.Sc. (Oxford University Press).

IV. BOTANY.

Plant considered as a living organism. The difference between the living and the non-living. Animals and plants.

Structure and function of the plant cell, Plasmolysis, Osmotic pressure, Permeability, Crystalloids and colloids, Nuclear and cell division, differentiation of plant cells. The forms of plant cells, thickening of the cell wall, pits, collenchyma, sclerenchyma, fibres and vessels.

Cell contents such as Starch, Inulin, Sugars, Glucosides, Oil and Fats, Proteins, Crystals, Tanins, Alkaloids, Etherial Oils, Pigments and Latex considered from the medical aspect

Structure of the Stem and the Root:—Primary and secondary thickenings; Heart and Sap woods; Annual rings; Structure of the leaf. Palisade and spongy tissue. Chloroplasts.

Plant and its water supply:—Absorption, Root pressure, Conduction, Transpiration. Variation of the above in relation to the surroundings of the plant.

Nutrition:—Dry weight and ash contents, Photosynthesis, Parasites, Saprophytes and Insectivorous plant.

Storage:—Storage organs, underground and aerial and their biological significance.

Enzymes, their action and the mode of extraction.

Respiration, Aeration of plants, Aerobic and Anærobic respiration; Liberation of energy.

Growth of the plant:—Elongation, condition influencing growth. Grafting.

Movements:—Geotropism, Heliotropism, Hydrotropism, Chemotropism

The life histories of the following plants treated in an elementary manner:—Chlamydomonas. Volvox, Spirogyra, Fucus, the origin and evolution of sex and somatic cells; Cystopus, Mucor, some fungi that cause diseases in animals. Yeast, Bacteria. Nitrogen and Carbon circulation. Ferns vegetative and reproductive organs.

Flowering plants:—Flower, structure and function of the different parts of the flower. Calyx, Corolla, Stamens and Govary, Pollination, self and cross. Formation of ovules and seed setting. Fruits and seeds and their dispersal. Seed germination and seedling.

An elementary knowledge of the classification of plants. The chief characteristics and the medicinal plants of the following families:—1. Cruciferæ, 2. Rosaceæ, 3. Legimenosæ, 4. Rutaceæ, 5. Euphorbiaceæ, 6. Umbelliferæ, 7. Solanaceæ, 8. Cucurbitaceæ, 9. Compositæ, 10. Liliaceæ, 11. Scitaminæ, 12. Palmæ and 13. Gramminæ.

Heredity:—Inherited and acquired characters, Mendel's observations, Determinants, Dominants, Dominance, proportion of progeny showing dominant and the recessive characters. Segregation of determinants, Interaction of characters.

Evolution:—Origin of species, Evidence from Morphology, Distribution and Palæontology Natural selection, Lamarckism. Segregation and new combinations of determinants.

Practical.—The students are expected to prepare free-hand sections, stain and mount them for microscopic examination: identify prepared sections; maintain a record of the experiments in plant Physiology and identify the plants of the family they study. The students will be required to submit the laboratory records at the time of practical examination.

Work.—The subject matter of the syllabus is expected to be covered by about 45 lectures and about 40 practical classes of 2½ hours' duration each

(b) The scheme of examination shall be as follows:—

		Max. Marks.
1. One paper of 3 hours in each subject	...	100
2. A practical examination of 3 hours in each subject	...	50
3. A *viva voce* examination in each subject	...	50

The minimum for a pass shall be:

35 per cent in the written examination in each subject.

35 per cent in the practical and *viva voce* examinations taken together in each subject and 50 per cent in the aggregate of the four subjects.

(Government Order No. E. Camp No. E. 8—Uni. 126-33-2, dated the 17th June 1934.)

By Order,

V. GOPALASWAMI AIENGAR,
Registrar.